

## Live Line Incident March 2010

1. Incident Outline



Fig 1. Fuse jumper tapping situation



Fig 2.. Wider view of incident situation

The Glove & Barrier live line task involved in this incident was the tapping of drop-out fuse jumpers onto the 11,000 volt live over head line.

A live line mechanic was in the process of making the permanent connection of one of the drop-out fuse jumpers to the main line, when the excess jumper length contacted the adjacent phase resulting in an 11,000 volt phase-to-phase flashover.

## 2. Outcome of incident

- (a) Fortunately, the live line mechanic and team members were not injured.
- (b) The 11,000 volt phase-to-phase flashover ( $R\phi$  to  $Y\phi$ ) resulted in the following immediate issues:
  - (i) Explosion and fireball (max fault current recorded was 2,000 Amps RMS)
  - (ii) Potential risk of serious injury, including electric shock, burns and/or fatality
  - (iii) Tripping of an 11,000 volt feeder circuit breaker
  - (iv) Loss of supply to 162 customers for two minutes (324 customerminutes)
  - (v) Molten metal ignited gorse hedge/grass in immediate vicinity
  - (vi) EWP and HIAB vehicles exposed to fire risk
  - (vii) Fire department call-out



- (c) Investigation into the incident revealed the live line mechanic failed to follow fundamental live line safety principles and safe working practices in that he:
  - (i) Did not follow the live line procedure (Remove or Install Pole Mounted Drop-out Fuses) available for the task in hand
  - (ii) Did not conduct a formal live line tailgate session
  - (iii) Was alone in the live line bucket
  - (iv) Did not apply cover up equipment
  - (v) Did not advise the safety observer he was commencing work in the live zone.
- (d) Following thorough investigation, careful consideration of the facts and also mitigating circumstances, the live line mechanic has been disciplined for serious misconduct.

## 3. Remedial Actions

- (a) Line mechanics were reminded about joint management/staff commitment to safety. In Particular:
  - Working safely and identifying all risks before starting a job to protect themselves, their work-mates and the public
  - Looking out for each other
  - Speaking up if something's not right
  - Reporting all accidents, incidents, near misses, and unsafe conditions
- (b) The lines supervisor spoke to all practising live line staff regarding this incident and emphasised the following:
  - (i) Live line procedures must be followed
  - (ii) A formal live line tailgate session must be held for all live line work
  - (iii) There must be a minimum of two people in the live line bucket or a second person in another live line bucket adjacent to the work area.
  - (iv) Effectively communicate with the appointed safety observer immediately prior to commencing work in the live zone
  - (v) The appointed safety observer must be in a suitable location to observe the work being performed, and not perform any other task whilst live line work is in progress
  - (vi) Ensure cover-up equipment is applied to all second points of contact
  - (vii) Jumper leads must be kept to a minimum length and terminated into HV fuses using live line techniques after the pole installation



- (viii) When breaking taps, use live line clamps, parallel grooved clamps, or tie off with binder wire, as these methods are more mechanically sound than zippy ties
- (c) The live manual is to be fully reviewed and appropriate changes made to clarify and emphasise issues that have arisen from this incident.

Investigation is continuing into this incident, including into workplace cultural, human factors and leadership / supervision issues underlying this incident.